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ABSTRACTS

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**Reconstructing early terrestrial vegetation: the role of mesofossils.****Jennifer Morris***School of Earth, Ocean and Planetary Sciences, Cardiff University, UK*

Charcoalified, three-dimensionally preserved mesofossils a few millimetres long, from the Pridoli and Lochkovian Welsh Borderland, have provided a new source of data on early land plants. However, whether or not these specimens indicate short, turf-sized vegetation or were the tips of much larger, more highly branched plants, remains conjectural. Here for the first time, coalified compressions in green, wavy and parallel-laminated, mica-rich siltstones from the lower Lochkovian at Tredomen Quarry (Brecon Beacons, Wales) provide unequivocal evidence for highly branching, minute plants, which inhabited floodplains of sandy, meandering perennial river systems.

These coalified compressions are no more than 4.5 mm long, with axes up to 500 microns thick, with terminal sporangia up to 0.9 mm in length. In some specimens, 4 dichotomies at branching angles of approximately 40° have been recorded, with evidence of overtopping. Sporangia occur just above the final dichotomy, resulting in sporangial clusters.

These mesofossils occur alongside megafossils, including fertile tips of basal embryophytes e.g. *Cooksonia hemisphaerica*, that attain a minimum height of 16mm, and possess sporangia five times larger than mesofossil sporangia, confirming the presence of at least two components of early land vegetation. However, due to the lack of anatomical preservation, the affinity of these mesofossils remains enigmatic.

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**Aftermath of the late Frasnian mass extinction (Upper Devonian) on brachiopods in the Namur-Dinant Basin (Belgium)****Bernard Mottequin***Department of Geology, Trinity College, Dublin, Ireland*

Due to their diversity and their abundance in Frasnian communities, brachiopods are prime tools for evaluating the extinction events related to the late Frasnian mass extinction whose causes are still hotly disputed. In the Namur-Dinant Basin (southeastern margin of Laurussia), Frasnian brachiopod decline occurred in three steps within the interval spanning the Lower *rhenana* conodont Zone to the *linguiformis* Zone. The major losses occurred at the top of the Upper *rhenana* Zone. These extinction episodes were linked principally to diachronous regional facies changes related to transgressions. Atrypids and pentamerids disappeared at the top of the Lower *rhenana* Zone in the deeper part of the basin, just before the deposition of the dark shales (indicative of hypoxic bottom conditions) of the Matagne Formation, but persisted within the Upper *rhenana* Zone in its shallow parts. The *linguiformis* Zone yielded only productids (Chonetidina), rhynchonellids and lingulids. Post-extinction brachiopod recovery was rapid in the basal Famennian but, despite their great abundance, their diversity was quite low. At present, only one surviving athyridid species (Lazarus taxon) is definitely recognized in the lower Famennian. New cosmopolitan spiriferid, athyridid and rhynchonellid genera appeared at this time concomitantly with new species of pre-existing orthid and orthotetid genera.